IGAC & SOLAS emerging activity

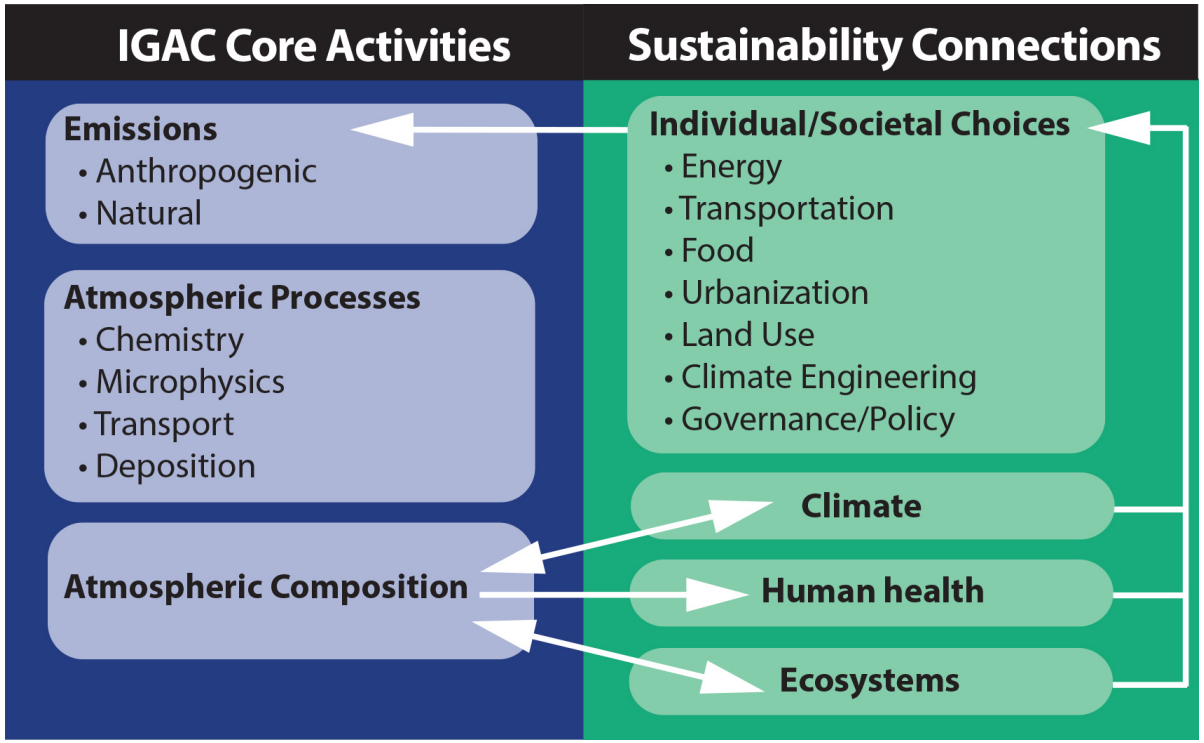
Working title for activity:
CATCH – The Cryospere and ATmosperhic CHemistry

Scientists engaged in helping to plan CATCH to date include:

- **Jennie L. Thomas, France**
- Thorsten Bartels-Rausch, Switzerland
- Tom Douglas, USA
- Markus M. Frey, UK
- V. Faye McNeill, USA
- Paul Shepson, USA
- Kerri Pratt, USA
- **Jennifer Murphy, Canada**
- Megan Willis, Canada (early career scientist)
- Jon Abbatt, Canada
- Anna Jones, UK
- Cort Anastasio, USA
- Daiki Nomura,
- Kitae Kim, Korea

How has work on atmospheric-cryosphere interactions been coordinated in the past?

- IGAC - **International Global Atmospheric Chemistry** (**IGAC**) Project http://www.igacproject.org



Past activities sponsored by IGAC: Air Ice Chemical Interactions (AICI)

07 Jul 2008 -- P. S. Anderson
Boundary layer physics over snow and ice

12 Mar 2008 – A. Steffen
A synthesis of atmospheric mercury depletion event chemistry in the atmosphere and snow

16 Jan 2008 -- F. Domine
Snow physics as relevant to snow photochemistry

22 Aug 2007 -- W. R. Simpson
Halogens and their role in polar boundary-layer ozone depletion

22 Aug 2007 -- A. M. Grannas
An overview of snow photochemistry: evidence, mechanisms and impacts

12 Feb 2014 -- T. Bartels-Rausch
A review of air–ice chemical and physical interactions (AICI): liquids, quasi-liquids, and solids in snow

20 Mar 2013 -- A. M. Grannas
The role of the global cryosphere in the fate of organic contaminants

20 Dec 2012 -- R. Sander
A compilation of tropospheric measurements of gas-phase and aerosol chemistry in polar regions

24 Oct 2012 -- V. F. McNeill
Organics in environmental ices: sources, chemistry, and impacts

19 Jul 2012 -- J. P. D. Abbatt
Halogen activation via interactions with environmental ice and snow in the polar lower troposphere and other regions

Co-chairs - FayeMcNeill, Columbia University and Thorsten Bartels-Rausch, PSI

Past activities co-sponsored by IGAC:
Ocean - Atmosphere - Sea Ice – Snowpack (OASiS)

Activities – O-Buoy, BROMEX, other activities

Co-chairs - FayeMcNeill, Columbia University and Tom Douglas, CRREL

Past activities co-sponsored by IGAC : Halogens in the Troposphere (HitT)

Special conference sessions (e.g. EGU)

Proposing/planning field campaigns

Workshops

Review papers

Chairs – R. von Glasow & Ulrich Platt

What is CATCH?

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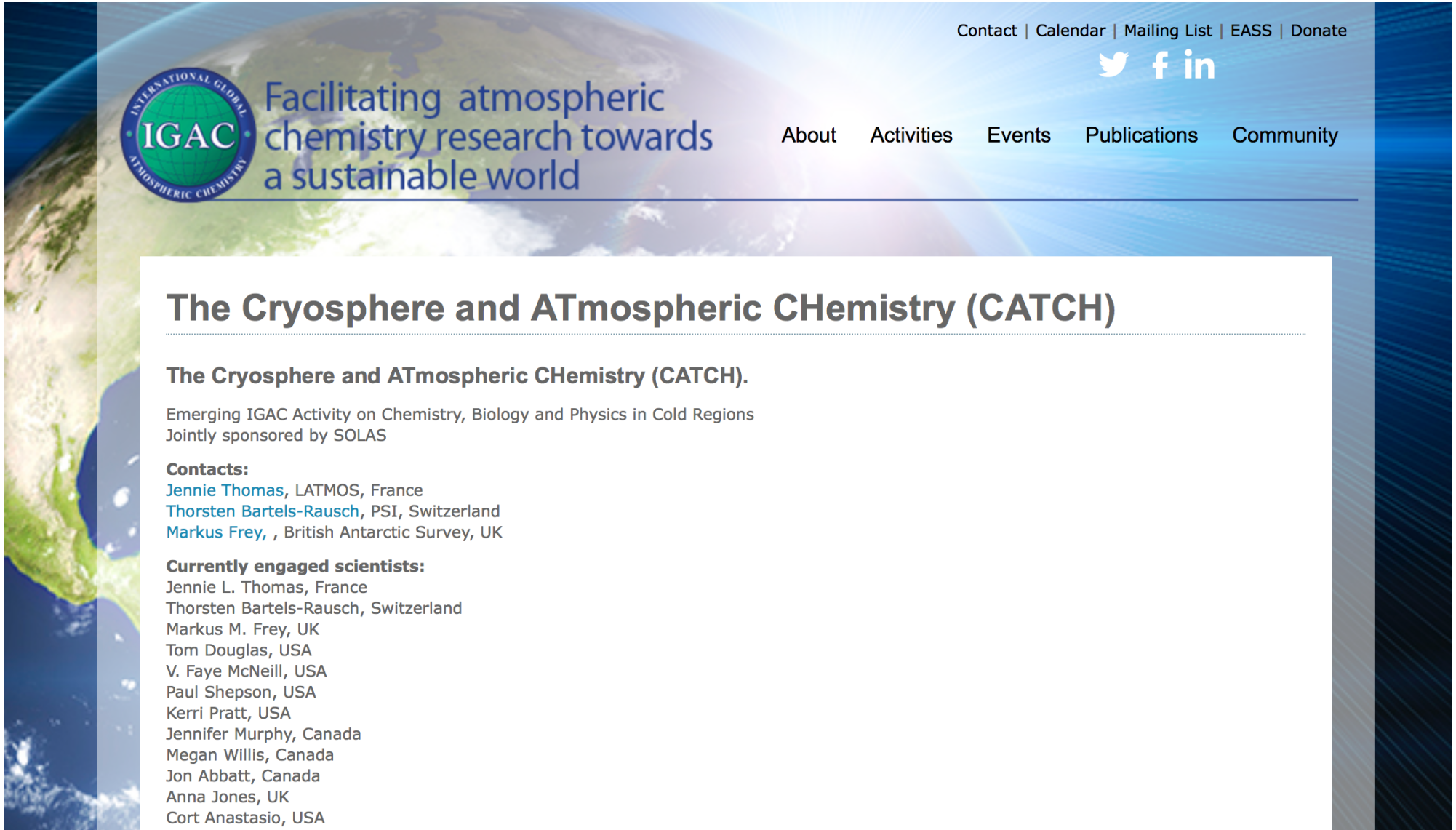
- + other to be defined areas of research

Shared activities - envisioned

- Ozone cycle & trace gases (shared with IASOA)
- Interactions between natural & pollution processing in the Arctic (shared working group with PACES)
- Atmospheric chemistry & ice cores (shared working group with PAGES)
- Atmospheric chemistry and the polar oceans (shared working group with SOLAS)
- Cryospheric change & atmospheric chemistry (shared with CLiC)
- The influence of sea ice on atmospheric chemistry (shared with BEPSII)

Where can you learn more about CATCH?



Draft CATCH mission and vision statements

Mission (why we exist)

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Vision (desired outcome)

CATCH scientists aim to understand and predict:

- How physical, chemical, biological, and ecological changes in sea ice and snow impact atmospheric chemistry
- How atmosphere-ocean interactions determine atmospheric chemistry
- Feedbacks between climate change and atmospheric chemistry that are determined by changes in the cryosphere
- How aerosols are formed and processed in cold regions
- How aerosols in cold regions act as cloud precursors and impact cloud properties
- How the ice core records can be used to understanding global and local environmental change
- How background composition/chemistry (trace gases and aerosols) in cold regions influences the fate of pollution (joint objective with PACES)

Scientists will achieve this by devising strategies to cooperate in the field, lab, and via modeling

Full draft version at: https://dl.dropboxusercontent.com/u/8798802/CATCH-mission-vision_v10.pdf

How to engage – provide input for the mission/vision for CATCH

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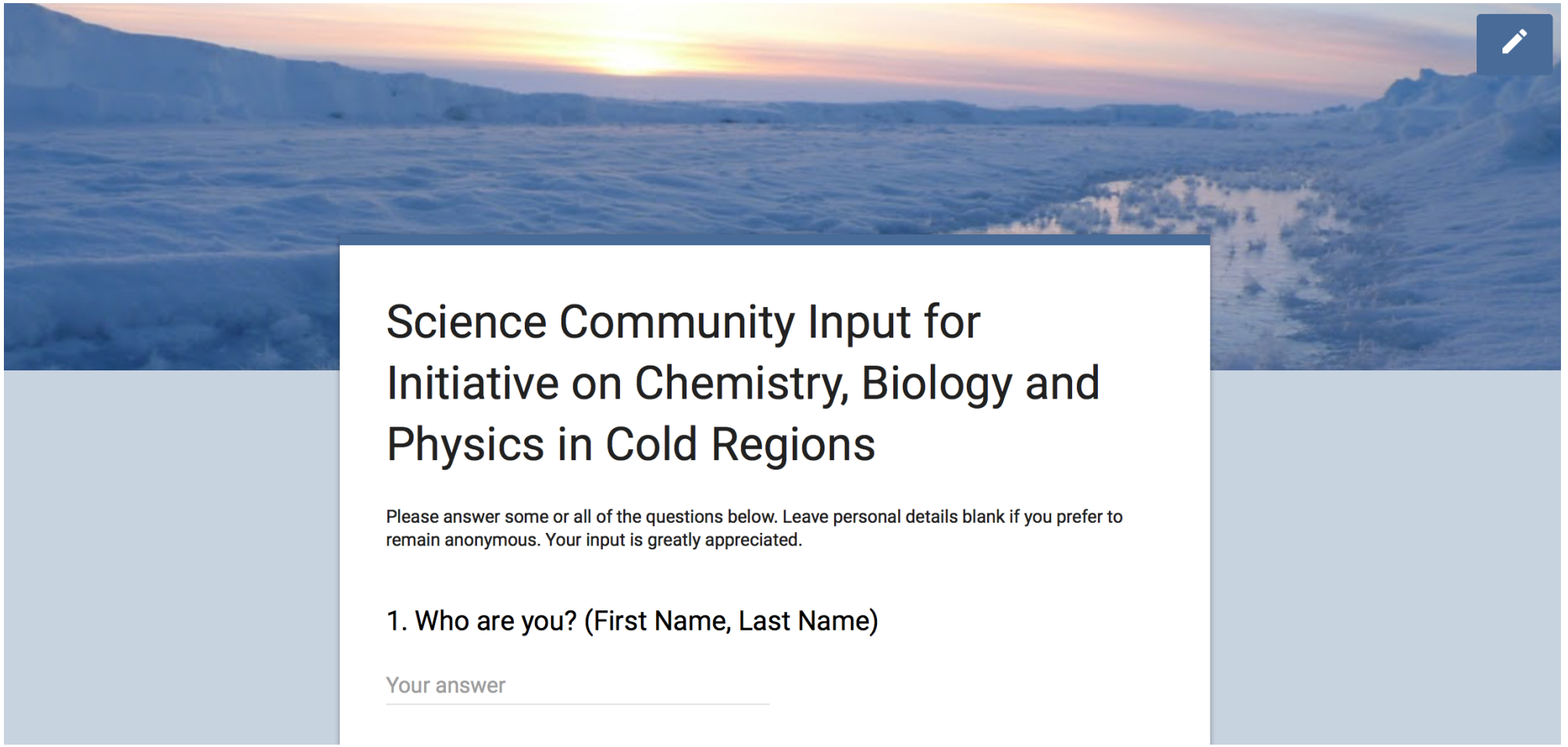
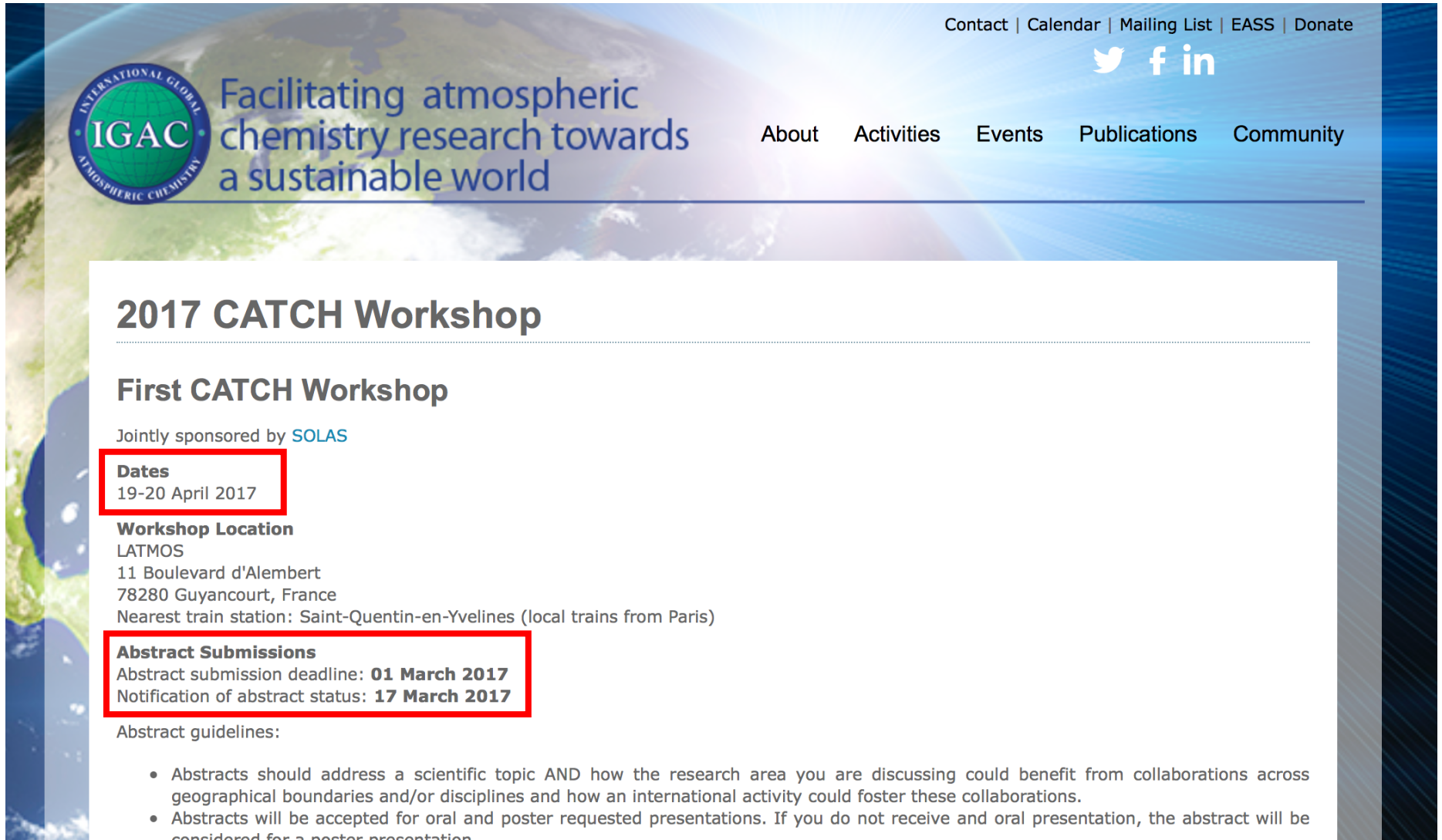
How to engage – CATCH is currently seeking community input



http://tinyurl.com/jd4t9sy

How to engage – attend the first CATCH community workshop

19-20 April near Paris, France



How to engage – attend the first CATCH community workshop

Workshop science themes

- How physical, chemical, biological, and ecological changes in sea ice and snow impact atmospheric chemistry
- How does microbiology (microbes, ice algae) adapt and impact biogeochemical cycling of elements in ecosystems of cold environments? What are the feedbacks between (sea)ice microbiology and climate (e.g. particle precursor gas fluxes, albedo changes)?
- How atmosphere-ocean interactions determine atmospheric chemistry
- Feedbacks between climate change and atmospheric chemistry that are determined by changes in the cryosphere
- How aerosols are formed and processed in cold regions
- How aerosols in cold regions act as cloud precursors and impact cloud properties
- How the ice core records can be used to understanding global and local environmental change
- How background composition/chemistry (trace gases and aerosols) in cold regions influences the fate of pollution (joint objective with PACES)
- How do physical processes in atmosphere (e.g. mixing, nucleation) and snow (e.g. metamorphism, radiative transfer) contribute to biogeochemical cycling of trace gases as well as particle formation and transport?

How to engage – sign up for & contribute content to the newsletter

CATCH Newsletter December 2016 View this email in your browser

Introducing CATCH

CATCH is an emerging activity focused on chemistry, biology and physics in cold regions, jointly sponsored by IGAC & SOLAS

Welcome to the CATCH e-newsletter and mailing list!
We need your engagement to help shape this emerging activity. Ways to engage: fill out our community survey, attend our first science and planning workshop on April 19 - 20, 2017 in France, provide comments on our draft mission and vision statement.

Where to find out more

- Email: catch@igacproject.org
- Website: http://www.igacproject.org/CATCH
- Community meeting: http://igacproject.org/2017CATCHWS

- Community input survey:

http://tinyurl.com/jd4t9sy

- Draft mission & vision:

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